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ABSTRACT

This paper discusses two aspects of reading as a cognitive process as they relate to instruction based on the intellectual operation performed during the act of reading. The first consideration is an assumption that comprehension skills are based on a set of underlying cognitive tasks or operations which can be developed through instruction. The second assumption is that instructional strategies for these cognitive tasks which are presented in an organized and systematic manner can facilitate children's competence in performing these cognitive tasks and, therefore, in performing the skills of reading comprehension. Two cognitive tasks, concept formation and interpretation of data, are used in this paper as the basis for planning critical reading instruction at the elementary school level. Two structured lessons and discussions provide examples for teaching specific cognitive skill objectives and for allowing pupils to reach their own decisions, building cognitive skills through use. (WR)

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Intellectual Factors Related to the Reading Process: Cognitive Skills

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Elementary school educators have generally included the skill of critical reading as an important objective in the curriculum. Many professional reading texts list critical reading as a comprehension skill, most often the last one to be named. This position is indicative of the place that critical reading usually occupies in elementary schools.

Evidence indicates that little or no time is spent on critical reading instruction in grades one through six (Austin and Morrison, 1963). Explanations for the lack of critical reading instruction in many schools are listed in The First R as: (1) instruction at the college level which does not give adequate training for implementing the instruction, (2) lack of teacher education in logical thinking skills, (3) little aid in most basal reader teaching guides, (4) classroom reading instruction which stresses readiness and guided reading, and (5) testing pupils primarily for literal comprehension (Austin and Morrison, 1963).

The dual purpose of this paper is (1) to develop a rationale for critical reading skills in the form of a coherent framework and (2) to present a strategy for critical reading instruction which is logically consistent with the nature of the skill.

Critical Reading

Since critical reading is generally considered to be a sub-skill of

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the reading process, examination of the nature of critical reading should first consider the nature of reading. Definitions of reading range from the description of the process of decoding printed symbols for meaning to the more general statement that reading is thinking. Components of the reading process are given various terms, but generally included are the skills of word perception, comprehension, reaction and assimilation (Simmons, 1962). The processes of reaction and assimilation are considered basic to critical reading. According to many definitions, critical reading is the ability to analyze what is read and make logical evaluations. The definition probably most often quoted is Robinson's, which states that critical reading is the "judgment of the veracity, validity, or worth of what is read, based on sound criteria or standards developed through previous experience" (Robinson, 1964, p. 3). Since the word "judgement" often is used to describe decisions based on values, substitution of the word "evaluation" may connotate a more objective basis for arriving at a decision. On that assumption, the definition of critical reading used in this paper is: the evaluation of the veracity, validity, or worth of what is read, based on sound criteria or standards developed through previous experience.

Further consideration of the nature of critical reading can include an examination of the mental operations which may be used in the process. Critical reading is considered by many educators to use similar operations to critical thinking. Among these, Russell (1956) and Glaser (1941) state that critical reading utilizes critical thinking skills in the evaluation of what is read. Acceptance of this assumption implies that cognitive operations as they relate to critical thinking may be considered as part of the nature of critical reading.

Cognitive skills have been analyzed theoretically by many educators, from Dewey to Guilford. Hilda Taba (1967b) has attempted to identify some of the cognitive tasks, skills that may contribute to these tasks, as well as instructional strategies for these cognitive task objectives. The major cognitive tasks she describes are concept formation, interpreting data, and applying known concepts (1967b).

As proposed by Taba, cognitive skills are developed sequentially from concrete operations to more complex and abstract processes. Her framework arranges these skills in a hierarchical order and identifies the covert and overt mental processes relating to each skill.

The most concrete level, concept formation, includes the activities of enumeration and listing, grouping, categorizing, labelling and subsuming. Interpretation of data, the second level of cognitive tasks, is composed of identifying points, explaining items of information and making inferences based on the data supplied. The most abstract level is the application of principles, which includes the prediction of consequences, explaining unfamiliar data, and explaining and supporting hypotheses (Taba, 1967b).

Because Taba's framework provides a relationship between overt activities and cognitive skills which have been identified as aspects of critical reading, it provides a basis for planning a structured instructional program for developing the cognitive skills of critical reading.

The first two cognitive tasks, concept formation and interpretation of data, are used in this paper as the basis for planning critical reading instruction. In the study directed by Taba (1966) in which she developed this framework, social studies was chosen as the area for content instruction. This paper also presents social studies as the instructional content.

The feasibility of such instruction at the elementary level is considered in the following section.

Critical Reading at the Elementary Level

Much of the critical reading instruction in the schools is at the secondary level. Support for this observation is attained indirectly by Buros (1968) Reading Tests and Reviews which lists critical reading tests only for college and secondary school levels. One of the tests listed was developed by Glaser (1941) in a study which is considered by many to be a landmark in critical reading research. In addition to the evaluating instrument, Glaser developed teaching strategies and a rationale of critical reading that is frequently referred to in the literature. For sometime following this study, research on critical reading was concentrated at the secondary level. Explanations for this concentration of attention may lie in the hierarchical concept of reading skills as espoused by educators such as Robinson (1964) and Russell (1956) which places critical reading at the highest level of the continuum of complexity. Also, as Taba (1967b) reports, a widely accepted assumption is that thinking cannot take place until a sufficient body of knowledge is accumulated, in order to have something to "think with". The fallacy of this assumption can be demonstrated by the studies of Taba (1966), Ennis (1962), Wolf (1967) and others. In addition, Russell (1956) states that no "age of reason" stage of mental development is requisite to developing critical reading abilities, but rather a gradual increase in the complexity of the situations which are the basis of instruction is what should be considered. The degree of success attained by Wolf, Taba, Ennis, and others, as well as the need for such instruction as reported in

The First R suggest that the improvement in critical reading abilities of young children is both feasible and desireable.

Based on the assumption that the critical reading uses cognitive skills to process the material read, cognitive skill instruction, at the elementary level, is investigated in the following section.

Teaching Cognitive Skills

Though intellectual development of pupils is accepted by schools as an educational objective, specific instruction with identified cognitive objectives is rare. The influence of instruction on the level of cognitive operation by pupils is demonstrated by studies which indicate that the cognitive level of teachers' questions determines the cognitive level of response by pupils (Taba, 1966).

Five studies of teaching have centered on cognitive objectives of teaching. Studies by Davis and Tinsley (1967) and Rogers (1969) analyzed teachers' questions that were recorded using a standard observation record. Recall questions were employed most of the time by the teachers. In addition, Rogers found that the inservice program aimed at varying the cognitive level of teachers' questions did not significantly alter their patterns of teaching.

Hiparm (1957) conducted a study to explore instruction in logic as a means of increasing the critical thinking ability of pupils. Because his study was limited in scope by the small number of subjects and restricted intelligence range to the upper levels, his positive results are not widely generalizable. His study is an example, however, of the growing number of researchers who are dissatisfied with the results of the large number of studies which have attempted to improve critical thinking skills of children by instruction in methods of

problem solving and scientific inquiry,

Results of Wolf's study (1967) would tend to support Hiparm's contention that instruction in logic can help develop pupils' skills of logical reasoning as a component of critical reading. At all grade levels of the study, grades one through six, the experimental classes showed significantly higher scores on the criterion measure, with the greatest gains occurring in the measure of logical reasoning.

According to Taba (1967b) acquisition of the cognitive skills of critical reading requires the use of a teaching strategy considerably different from those commonly used. Teachers have traditionally considered themselves as transmitters of information, and to allow a child enough freedom to learn to reach his own decision or interpretation requires less telling and more stimulating of a learner's thinking. While information can be learned through listening or reading, active mental processes as these cognitive skills described by Taba cannot be learned by following the thought processes of either a book or a teacher, unless a learner also has the opportunity to internalize and build on the cognitive skills through use.

Some of the ways in which this concept of teaching may be implemented are presented in the following section.

Critical Reading Instruction

Using the conceptual framework for cognitive skill development presented by Taba (1966) together with those reading skills which are concerned with eliciting the basic data presented in the reading material, the objectives of this program are

The ability to:

1. State or infer the author's purpose.
2. identify or state the main idea of a passage and supporting details.
3. detect the organization of the information presented.
4. determine the author's intended meaning of words through the use of context clues.
5. differentiate between statements of fact and opinion.
6. enumerate and categorize items of data.
7. explain identified information.
8. propose inferences.
9. reach conclusions or generalizations.

The strategies used to reach these objectives fall into two categories: (1) the use of structured materials and (2) semi-controlled discussions (Taba, 1967a). The level of the materials is appropriate for fifth grade.

The use of structured materials is designed to teach pupils the skill of comprehension which are included in the first seven objectives stated above. The opportunity to develop the abilities described in the remaining two objectives is provided through the discussions.

The teaching strategy used with structured materials is the use of a retrieval chart (Taba 1967a). By organizing the information presented in a passage with the use of a chart, relationships are more clearly evident, missing information becomes obvious, comparisons of characteristics or phenomena is more easily accomplished. It is suggested that after pupils have read the passage, the outline of the chart be presented, and the pupils and teacher together supply the information for the appropriate categories. The passage in Example 1 describes a training program for young Spartans. While cause and effect relationships are not stated, the information is presented as such. The purpose of the program

is to raise strong and obedient citizens. While the author explains how the goal of raising strong citizens is reached, the strategy for developing obedience is not stated and must be inferred. The presentation of the information in retrieval chart form is found in Example 2.

The discussion teaching technique allows the teacher to pose questions leading to the student's ability to see the cause and effect relationship, to infer the result of the result of the conduct and control techniques used. The discussion is semi controlled because the information in the passage and the teacher's questions give direction for the discussion and because the discussion is used to reach specific cognitive objectives. The content of the answers are not determined by the questions, but the level of thinking is influenced by the types of questions. A title for the passage is not used in order for the pupils to determine the main idea and the author's purpose through analysis of the passage rather than through reliance on a title. A suggested guide for discussion is presented in Example 3. An additional sample lesson appears in Examples 4, 5 and 6.

LESSON 1: Example 1

Sparta had a well planned training program for children. The purpose was to raise citizens who would be strong and obedient so that the state would be able to defend itself against invaders.

Young Spartans were trained to be able to withstand discomfort. One part of their training was to wear the same kind of garment all year. This helped them to be able to stand the changes from hot to cold during the year.

Food was also used to train the children to live without the usual comforts. They were not allowed to eat until they were full. They were given enough food to keep healthy, but they would be more able to go without much food during long marches if they were not used to eating fancy foods and big meals.

To make sure that no boy would lack someone to watch over him, any citizen was able to punish a boy for any wrong he might do. The boys were taught to keep their hands inside their cloak, to walk in silence, and keep their heads down, eyes on the ground.

It would have been hard to find a healthier or stronger person than the Spartan citizen.

RETRIEVAL CHART: Example 2

	Practice	Result
Clothing	Wear same garment all year.	Able to stand weather changes without adjusting clothing.
Food	Not allowed to eat until full. No fancy foods, big meals.	Able to go withoug much food on long marches.
Conduct and Control	Any citizen could punish a boy. Boys taught to: Keep hands inside cloak, Walk in silence, keep head down, keep eyes on ground	Many adults available to supervise boys.

Author's conclusion: Spartans were strong and healthy.

DISCUSSION GUIDE: Example 3

Objectives and suggested questions;

1. To state the main idea.

   What does the author talk about most? Is there a sentence which says why they wanted to treat boys that way? Which sentence gives a name to the treatment for boys?

2. To state author's intention.

   Does he state it? What did we say he talked about most? Can we infer, then, what might be his intention?

3. To determine cause and effect relationship and make inferences.

   What did they think would happen because the boys didn't eat much? Why did they wear the same type of clothing all year? What else might happen?

4. To make inferences.

   Why do you think that they made boys walk like they did? How well do you think boys behaved when any adult could punish them? Can we decide what might be a possible result of this aspect of training to fill in the missing information on the chart?

5. To make generalizations; go beyond information given.

   Do you think the Spartans were being mean to their boys? Why or why not? How are you treated by your parents as compared to the Spartan boys? Do you think you're as healthy as they were? Why or why not?

LESSON 2: Example 4

A name that almost has been lost during the period following the Supreme Court running against segregation is that of Mrs. Rose Parks of Montgomery, Alabama. Mrs. Parks did a very simple thing. What she did was to refuse to get up and give her seat on the bus to a white man. She was tired, and she was fed up. "It just happened," she explained later, "that the driver made a demand and I just didn't feel like obeying it."

This is the way that the Montgomery bus boycott of 1955 and 1956 began. For 381 days Negroes refused to ride Montgomery buses and the boycott ended only after the Supreme Court ruled that bus segregation was illegal.

But the boycott had another effect in influencing what was to happen later. For Mrs. Parks' refusal to give up her bus seat was an act of nonviolent resistance. Nonviolent resistance is a peaceful means of protests by citizens of conditions that they believe are unjust. The boycott was the first nonviolent action by a large group of people that was intended to break down segregation. The success of the Montgomery boycott showed that protesting against an unjust law by peaceful means can help end the unfairness. Most important, it showed that black Americans realized that court decisions were not enough, that something more was needed to end the segregation system.

RETRIEVAL CHART: Example 5

	Action	Reason for action	Result
Individual	Refused to give bus seat to white man	Didn't feel like obeying driver's demand.	Bus boycott began, boycott showed that peaceful protests can be successful
Groups	Supreme Court ruling		Segregation on buses illegal

Author's conclusions:

1. The success of the bus boycott showed that peaceful protests can help end unfairness and that Black Americans realized that more than court decisions were needed to end segregation.

DISCUSSION GUIDE: Example 6

Objectives and suggested questions.

1. To state the main idea.

   Does he state it? What was the reason for the boycott? What did the author say started the boycott? In the last paragraph, the author gives a second result of the boycott. What action caused all of these things to happen, according to the author?

2. To state the author's intention.

   Does he state why he wrote it? Does he give all facts, or does he also give his own opinions? Are the last two sentences facts or conclusions reached by the author: Do you think he wrote this passage to be able to express his own point of view? Why or why not?

3. To determine cause and effect relationship and make inferences.

   What happened when Mrs. Parks decided not to give up her seat? After the boycott was started, then what happened? Does a boycott usually include a few people, or a lot? Why do you think the Supreme Court decided to end the boycott and the bus segregation? Why did all of these events happen?

4. To make inferences; go beyond information given.

   Do you think that bus segregation was a law? Why or why not? What do you think might have happened to Mrs. Parks after that day? Why?

The strategies presented in the examples can be used and adapted for many varieties of content and other grade levels. The use of structured lessons and discussions provides the opportunity for reaching specific cognitive skill objectives and for allowing pupils to reach their own decisions, building cognitive skills through use.

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